
Tree New Mexico - ABQ NeighborWoods

Final Report Los Duranes/Sawmill

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I. Background

The Trees and Health Study performed in 2013 ¹ reported that Albuquerque lost more tree canopy (2.7% of its tree canopy over a 3year period) than cities that had experienced natural disasters like flood and tornado. In order to start replacing this lost tree canopy, the ABQ NeighborWoods Program was founded. Championed by Albuquerque City Councilor Isaac Benton, a team was formed which included other city and state partners such as American Society of Landscape Architect (ASLA) members Amy Bell and Robert Loftis, New Mexico State Urban Forester Jennifer Dann, Albuquerque City Forester Joran Viers, Albuquerque Planning, the Albuquerque Office of Neighborhood Coordination, and Tree New Mexico (TNM). The team felt it was imperative to engage homeowners particularly, as close to 85% of Albuquerque's trees were located on private property. Councilor Benton set the precedent by using a portion of his discretionary budget to fund the program.

Briefly, the ABQ NeighborWoods grant includes 100 free street trees planted in a single day by volunteers, and 100 free small giveaway trees that homeowners can plant anywhere on their property themselves. The street tree planting criteria for city egress is limited to within 20 feet of the street. The homeowners adopting the street trees are required to sign an agreement with the city promising to water and care for the trees. The grant also includes an arborist audit for 3 years with feedback to the homeowners if any issues are found. Pertinent training on various tree topics such as pruning, and the Tree Plotter database are also included.

Los Duranes and Sawmill were the fourth ABQ NeighborWoods grant recipients in District 2. This was the first time that we tried combining two neighborhoods into one planting. Creating shade corridors was encouraged so neighbors would want to get outside and walk more. Studies have shown direct correlations between trees and an improvement in health and a decrease in crime. One hundred street trees were planted in a big volunteer event on Oct 27, 2018. The smaller trees were given away the next weekend in two separate sites.

The ABQ NeighborWoods Program has since expanded across all but one of the Albuquerque City Councilors' districts. ABQ NeighborWoods plantings have been held since 2017, with over 4400 trees planted and given away.

¹ Trees and Health App <http://map.treesandhealth.org/>

II. Tree Planting

As mentioned above, the tree planting in Los Duranes/Sawmill was challenging because not only was it our first combined neighborhood, the two neighborhoods although they appear to border each other on the map, in reality, are physically two very separate neighborhoods. Additionally, Sawmill has three distinct areas within its boundary, so this planting was much more complex than we initially thought it would be.

The tree canopy percentage in Sawmill was below the Albuquerque city average, but Los Duranes was a bit above the Albuquerque city average tree canopy according to the Trees and Health Study.² (Figure 1)

Fortunately, both neighborhoods had planting strips that would accommodate shade trees along with front yard spaces. Planting trees in these areas, especially the planting strips, provides the best canopy cover for the sidewalks. (Figure 2)

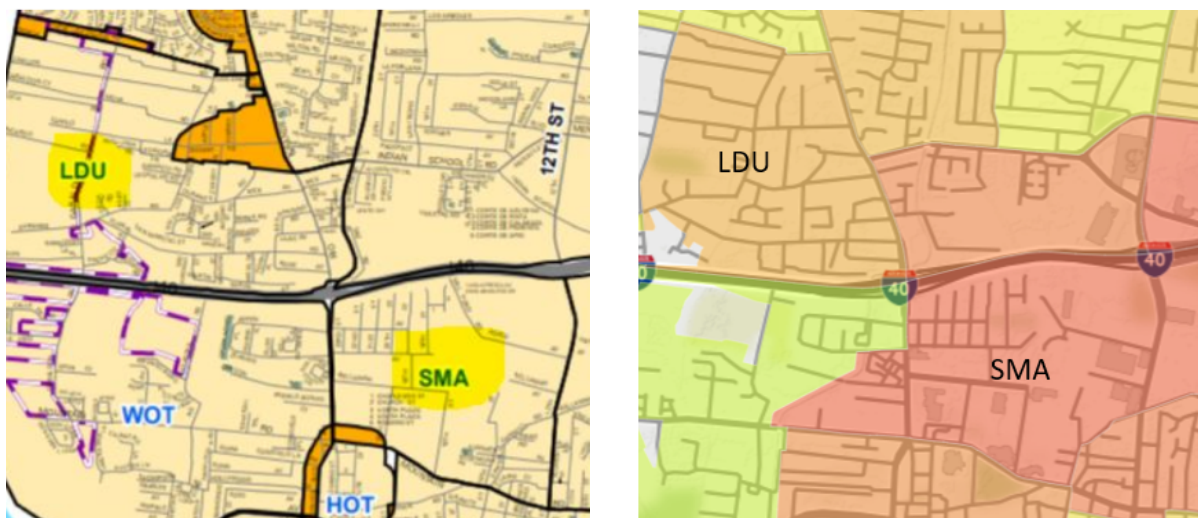


Figure 1

Heat map of Rt66W neighborhood – <http://map.treesandhealth.org/>

² <http://map.treesandhealth.org/>

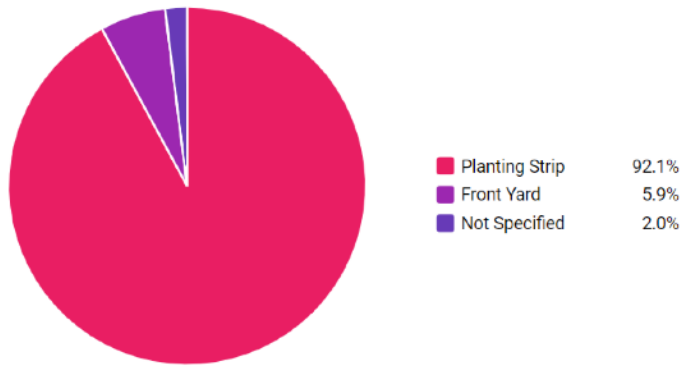


Figure 2

Growing Space - Tree Plotter App <https://pg-cloud.com/TreeNM/>

The Los Duranes neighborhood leaders identified Floral, Rice and Zickert as their priority as these are the streets that lead traffic off of Rio Grande into their neighborhood.

Sawmill went with a three-prong approach across the whole neighborhood to involve as many neighbors as possible.

They then split up the territory into parts and neighborhood leaders helped to canvass.

The neighborhood leaders were successful in getting all the tree adopters needed to place the 100 trees (Figure 3)

Los Duranes

Sawmill

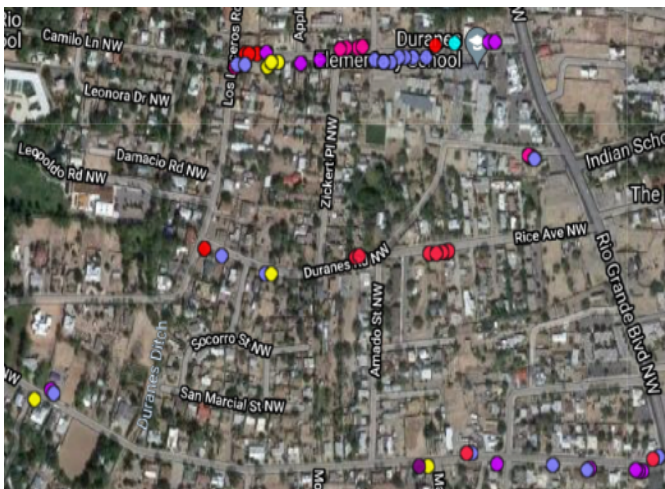


Figure 3

Planting Map – Tree Plotter - <https://pg-cloud.com/TreeNM/>

III. Survivability

The ABQ NeighborWoods survivability goal was purposely set to a challenging 85% over three years of tracking. This summer marked the 3rd year for Los Duranes/Sawmill, and thus a thorough inventory was performed on June 6, 2021.

The Los Duranes/Sawmill combined neighborhood fell just short of the survivability goal at 82%, but this is still a very good result. (Figure 4).

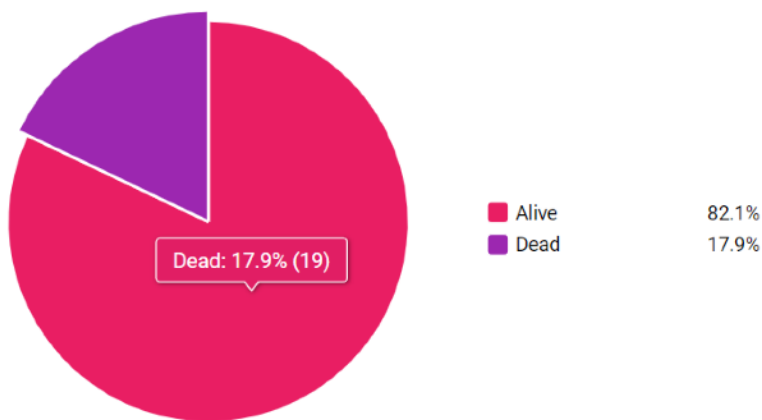


Figure 4

Overall Survivability - Tree Plotter App <https://pg-cloud.com/TreeNM/>

Mortality rates varied by species: The Eastern Redbud fared the worst. We have since learned not only that the Eastern Redbud does not do as well in our climate as the Oklahoma Redbud or other more drought tolerant Redbud varieties, but additionally, Redbuds should not be planted in the Fall, as their roots do not have enough time to establish themselves. This was a significant learning for us, but we did not put it all together until 2020 after seeing trends in several neighborhoods during our annual audits. The main contributor to mortality of the other species over the three-year study was reported by our arborist audits as the lack of consistent, deep, watering. (Figure 5).

COMMON NAME	COUNT	Species with Most Mortality - Top 10	
Eastern Redbud	19	COMMON NAME	COUNT
Frontier Elm	18	Eastern Redbud	7
Plum 'Krauter's Vessuvius'	11	Raywood ash	4
Boxelder	11	Pear	2
Raywood ash	11	Frontier Elm	2
Desert Willow	10	Boxelder	2
Chinese Pistache	9	Chinese Pistache	1
Southwestern Redbud	7	Southwestern Redbud	1
Pear	6		
Goldenrain Tree	4		

Figure 5 Species Survivability - Tree Plotter App <https://pg-cloud.com/TreeNM/>

IV. Eco Benefits

As noted above, a tree inventory was completed during May and June of 2021, to also assess how much the street trees had grown.

The most marked growth occurred in the Frontier and Alee Elms that got consistent watering. In some cases, the diameter DBH increased from 1 inch to close to 3 inches and the height went from 8 feet to +/- 20 feet. There were a couple of Flowering Pears and also a couple of Raywood Ash that displayed similar growth characteristics.

Using the Tree Plotter data base, the current Eco benefits were calculated. (Figure 7)

Total Eco Benefits

Overall Monetary Benefit (\$):	189
Stormwater Monetary Benefit (\$):	5
Runoff Prevention (Gallons):	1,084
Property Value Total (\$):	149
Energy Savings (\$):	16
Energy Saved (kWh):	205
Natural Gas Savings (\$):	12
Heat Prevention (Therms):	11
Air Quality Monetary Benefit (\$):	4
Pollutants removed (lb):	4
Carbon Monetary Benefit (\$):	3
Carbon Sequestered (lb):	395
Carbon Avoided (lb):	476

Figure 7

Eco Benefits - Tree Plotter App (Using iTree Algorithms) <https://pg-cloud.com/TreeNM/>

Eco Benefits Long Term

Using iTree, a general benefits forecast for 200 trees after 20 years of average growth was calculated (Figure 8).

This calculation is used to help educate neighbors on the environmental benefits of planting trees today for the future.

My Tree Benefits Wells Park	200 Trees After 20 Years
Carbon Dioxide (CO2 Sequestered)	\$520.00
CO2 Absorbed Each Year (lbs)	51,860
Storm Water	\$260.00
Rainfall Intercepted Each Year (gal)	40,000
Air Pollution Removed Each Year	\$160.00
Ozone (oz)	940
Other Particulates (oz)	440
Energy Usage Each Year	\$9,640.00
Electricity Savings A/C (kWh)	77,800
Avoided Emissions	
Carbon Dioxide (lbs)	164,300
Other Particulate Matter (oz)	2,420

Figure 8
 itree – <https://www.arbutustree.ca/itree-how-much-are-my-trees-worth/>

V. Learnings and Program Improvements

- We did not realize how challenging doing a dual neighborhood and a 3-prong target area in Sawmill would be. Canvassing and Tree Plotter time increased quite a bit versus our previous single neighborhood experience. There were many added logistical challenges as well. Currently we try not to do dual neighborhood plantings if at all possible based on these learnings, but as our program has grown we have been able to add more employees so that dual neighborhoods are a little easier when we absolutely do have to do them.
- We are no longer planting Eastern Redbuds. We also do not plant Redbuds at all in the fall anymore because they require a longer time to establish roots.
- The Pears and the Frontier Elms particularly came in with very matted roots, it took quite some time to try to address these wrapping roots and create space in their root balls to allow the roots to spread out for their best chance to grow. At this point in our program, we did not have many experienced team leaders, so it is possible that some of the trees were planted with wrapping roots which causes the tree to struggle and in some cases die. We reported this to Trees of Corrales, and we continue to work with them to try to obtain either smaller tree gallon sizes or more newly repotted 15-gallon trees.
- As mentioned above, we did not have many experienced planting team leaders at the beginning of our program so splitting up resources into two neighborhoods on planting day made for a long planting day. On the other hand, the firemen in Los Duranes were great. They provided lots of muscle and contributed greatly to the event. We try to encourage them to turn out in all the neighborhoods. Thankfully, some of the volunteers from Los Duranes were able to come over to help in Sawmill. Also, we now have a Volunteer Coordinator and close to 20 trained planting team leaders which helps to make planting day easier and more fun for all.
- At the 3-year mark, some of the Elms had grown substantially from 8 feet at planting to almost 20 feet, and the trunk diameter increased from 1 inch to close to 3 inches. These are a great choice for getting shade quickly and have been shown to grow similarly in all the neighborhoods where they get sufficient watering. This was our first-time planting Boxelders and Golden Rain Trees. The Boxelders look like they may have some promising results. We have planted more of these since and will be keeping an eye on how they do in other neighborhoods.
- Los Duranes only had one boots-on-the-ground leader participate, but he was very dedicated, and we could not have done this without him. Sawmill had two main leaders as they split up the neighborhood into east and west halves. Both were quite heavily involved and very helpful. We try very hard to get 3 to 5 neighborhood leaders now.

- We have improved our overall communication by completely updating our website (now found at www.treenm.org) to better cover tree maintenance best known methods, including watering. We have also improved our Facebook presence and implemented an Instagram account. We switched over to Mailchimp to reach out to tree adopters with our seasonal newsletters that contain tree maintenance recommendations and announcements for free tree pruning classes.
- The landscape architect did the final tree placement via the Tree Plotter app alone for Los Duranes/Sawmill. We found though that the Google satellite maps are not current enough in some cases, so now we drive through the neighborhood with the landscape architect and do the tree placement Tree Plotter mapping live.